

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTERS PATENT
OF THE UNITED STATES IS:

1. An initialization method comprising:

initializing a phase change optical recording medium with
5 a laser beam with a power density of from 15 to 22 mW/ μm^2 at
a linear velocity of from 8 to 12 m/s to initialize the phase
change optical recording medium, wherein the phase change
optical recording medium comprises:

a transparent substrate having a guide groove on the
10 surface thereof;

a first protective layer which is overlaid on the
transparent substrate;

a recording layer which is overlaid on the first
protective layer and which essentially consists of a material
15 which is represented by the following composition formula:
 $\text{Ag}\alpha\text{X}\beta\text{Sb}\delta\text{Te}\epsilon\text{Ge}\gamma$, wherein X is at least one element selected from
the group of Ga, In, Tl, Pb, Sn, Bi, Cd, Hg, Mn, Dy, Cu and
Au, and α , β , δ , ϵ , and γ have units of atomic % and satisfy
the following relationships:

20 when $\alpha = \beta = 0$;

$$\delta + \epsilon + \gamma = 100;$$

$$60 \leq \delta \leq 80;$$

$$0 \leq \epsilon \leq 30, \text{ and}$$

$$1 \leq \gamma \leq 10, \text{ and}$$

25 when at least one of α and β is greater than 0;

$$\alpha + \beta + \delta + \epsilon + \gamma = 100,$$

$$5 \leq \alpha + \beta + \gamma \leq 9,$$

$$\begin{aligned}
0 &\leq \alpha \leq 2, \\
0 &\leq \beta \leq 8, \\
60 &\leq \delta \leq 80, \\
0 &\leq \varepsilon \leq 30, \text{ and} \\
1 &\leq \gamma < 9; \text{ and}
\end{aligned}$$

a second protective layer which is overlaid on the recording a layer; and

a reflective layer which is overlaid on the second protective layer.

2. The initialization method according to Claim 1, wherein the recording layer has a thickness of from 8 to 20 nm.

3. The initialization method according to Claim 1, wherein the phase change optical recording medium further comprises an oxide layer which comprises at least ZrO_2 and which is located in at least one of a position between the recording layer and the first protective layer and a position between the recording layer and the second protective layer.

4. The initialization method according to Claim 3, wherein the oxide layer comprises ZrO_2 as a main component.

5. The initialization method according to Claim 3, wherein the oxide layer comprises a titanium oxide.

6. The initialization method according to Claim 5,

wherein the content of the titanium oxide is not greater than 60 mole % based on a total amount of materials included in the oxide layer.

5 7. The initialization method according to Claim 3, wherein the oxide layer further comprises at least one of a rare earth oxide and an oxide of a group IIa element exclusive of Be.

10 8. The initialization method according to Claim 7, wherein a content of said at least one of the rare earth oxide and the oxide of a group IIa element exclusive of Be ranges from 1 to 10 mole % based on ZrO_2 .

15 9. The initialization method according to Claim 3, wherein the oxide layer has a thickness of from 1 to 20 nm.

 10. The initialization method according to Claim 1, wherein the irradiation is performed while the laser beam forms
20 a spot having an area not greater than $200 \mu\text{m}^2$ on a surface of the recording layer, and wherein a light source of the irradiation laser beam has an output power of from 0.7 to 2.5 W.

25 11. The initialization method according to Claim 1, wherein the linear velocity is in a range within + or -2 m/s of a crystallization limit speed of the recording layer.

12. The initialization method according to Claim 1,
wherein the irradiation is performed while the laser beam forms
an oval-shaped spot, wherein the following relationship is
5 satisfied: $d/n \leq pf \leq d(n-1)/n$,

wherein pf represents a feeding pitch of the laser beam,
 d represents a half width diameter of the oval-shaped spot in
a longitudinal direction, and n is an integer of from 2 to 5,
and wherein there is no portion in the recording layer which
10 is subject to irradiation multiple times.